REPLACEMENT DRAWINGS 1 of 19

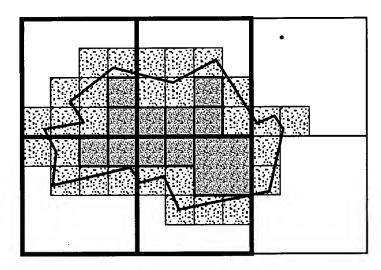
Applicant: Serial No.: Richard T. ANTONY

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LEGEND

- Interior cells
- Boundary cells

FIG. 1 (PRIOR ART)

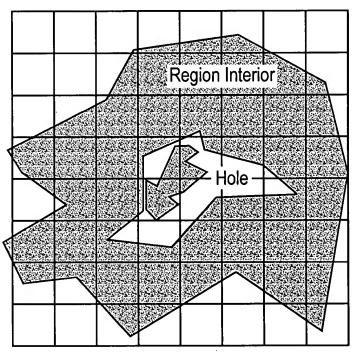
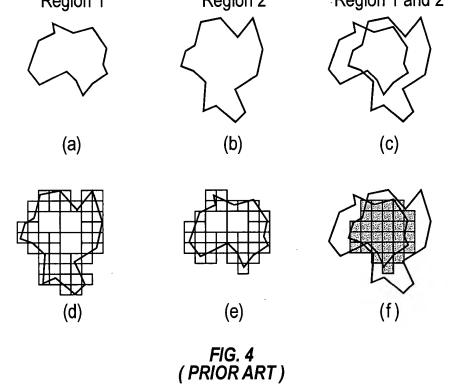


FIG. 2 (PRIOR ART)

REPLACEMENT DRAWINGS 2 of 19
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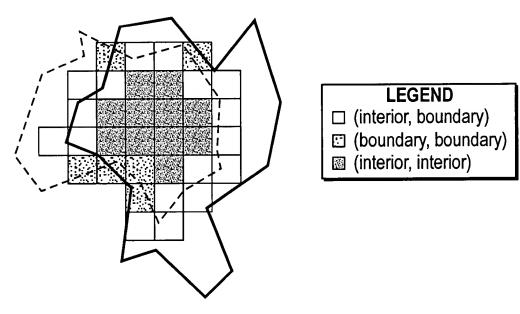


FIG. 5 (PRIOR ART)

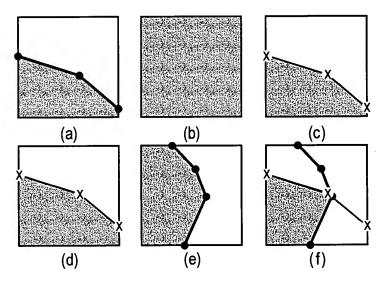


FIG. 7 (PRIOR ART)

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4/19 Replacement Sheet

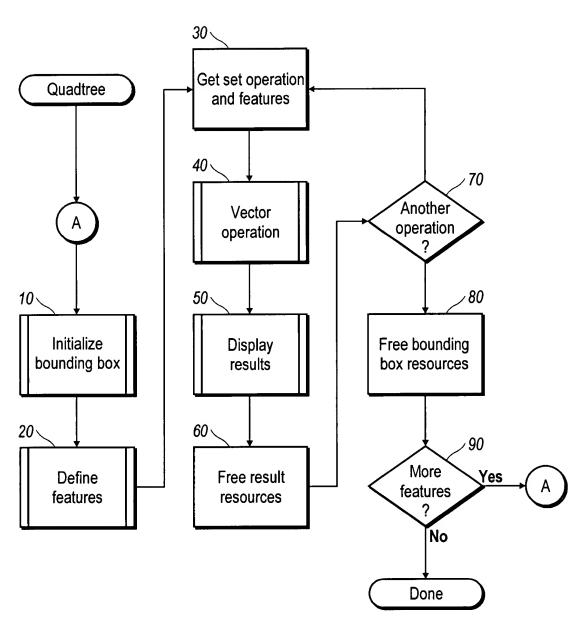


FIG. 6

11 (M) 11

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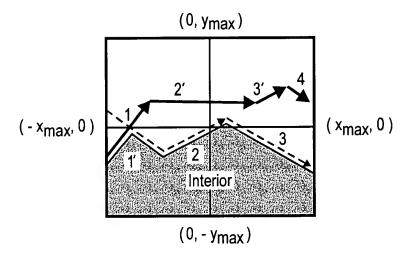
Applicant:

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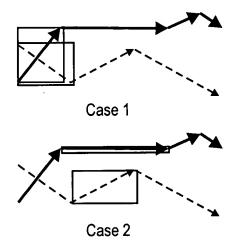
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Line segment intersection cases

The two bounding boxes associated with the first two tuple-pairs from both features intersects as shown to the right

The bounding boxes associated with the second set of tuple-pairs do not intersect



In the case to the right, two black line segments must be elevated for intersection with a single dashed line segment

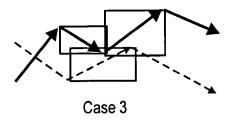


FIG. 8



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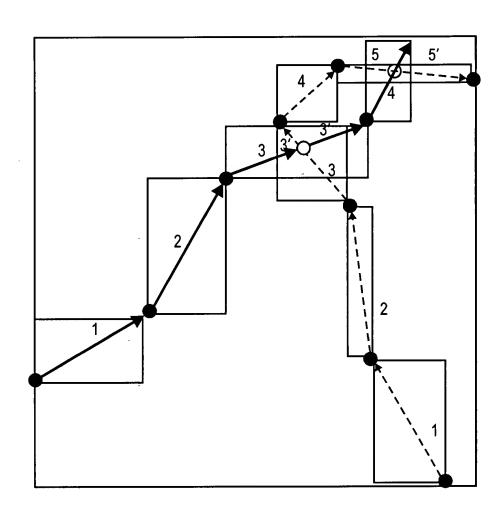


FIG. 9

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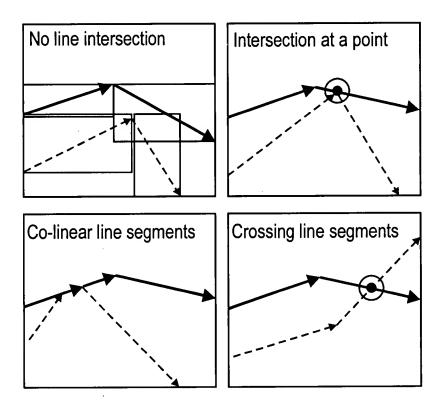


FIG. 10

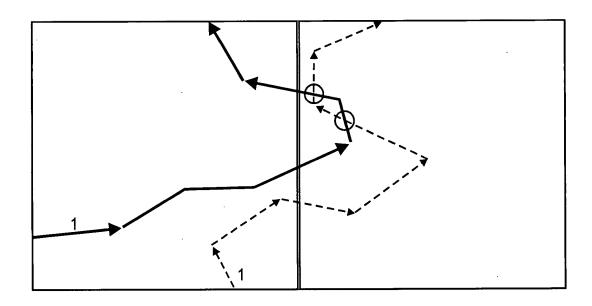


FIG. 11

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Dashed 2

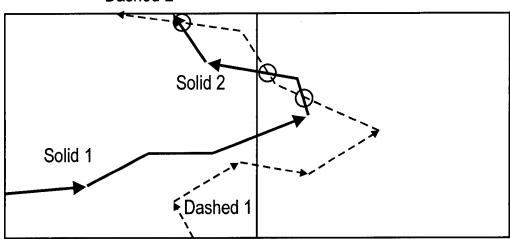


FIG. 12

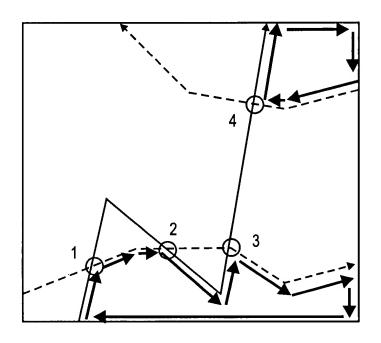


FIG. 13

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Possible cell entrance/exit point combinations

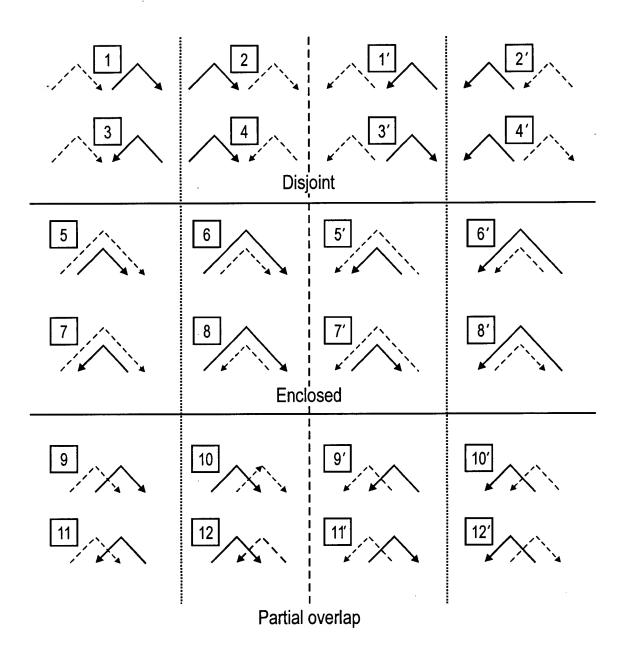


FIG. 14

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Entry/Exit Relationship	Class	Begin point for first cycle (inside is " to the right ") Intersection	Begin point for first cycle (inside is " to the right ") Union	Begin point for first cycle (inside is " to the left ") Intersection	Begin point for first cycle (inside is " to the left ") Union	
D _E D _X S _E S _X	Ι	First intersection point of solid or dashed feature (Null if no intersect points)	Pseudo points (S _E <u>and</u> D _E)	Pseudo points (S _E <u>and</u> D _E)	First intersection point of solid or dashed feature (<u>Full</u> cell if no intersect points)	
D _E S _X S _E D _X	I	Pseudo points (S _E <u>and</u> D _E)	First intersection point of solid or dashed feature (Full cell if no intersect points)	First intersection point of solid or dashed feature (Null if no intersect points)	Pseudo points (S _E <u>and</u> D _E)	
$D_{E}S_{E}S_{X}D_{X}$		Pseudo point S _E	Pseudo point D _E	Pseudo point D _E	Pseudo point S _E	
$D_{E}S_{E}D_{X}S_{X}$	N.	Pseudo point S _E	Pseudo point D _E	Pseudo point D _E	Seudo point S _E	
$D_E D_X S_X S_E$		Pseudo point D _E	Pseudo point S _E	Pseudo point S _E	Pseudo point D _E	
$D_E S_X D_X S_E$	Ĭ	Pseudo point D _E	Pseudo point S _E	Pseudo point S _E	Pseudo point D _E	

Application of table:

Follow specified boundary entrance feature, accumulating intersection and/or union cycles until all polyline intersection point tuples in the cell have been exhausted.

Cycles alternate systematically along the specified entrance feature between contributions to intersection and union.

Cycles are completed when they close on themselves. The implicit boundary-closing segments of a boundary-closing cycle are not actually represented in the general product.

Comments:

As is apparent from the above formulation, intersection and union are effectively dual operations. The set operation generation procedure is similar regardless of the ordering convention of the polygon tuples (clockwise or counter-clockwise oriented), reflected in the symmetry observed within the above table.

Note that the classes are grouped into pairs. Classes I and II involve inverse operations;

Classes III and \underline{W} employ identical generation operations, as do Classes \underline{W} and \underline{V} .



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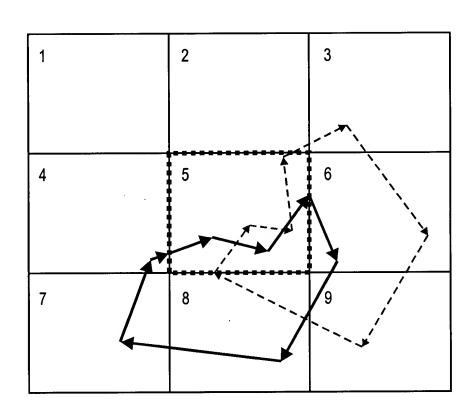


FIG. 16



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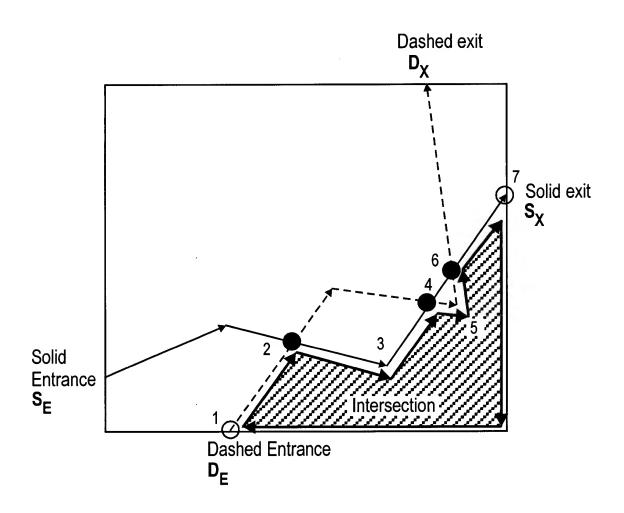


FIG. 17



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Richard T. ANTONY

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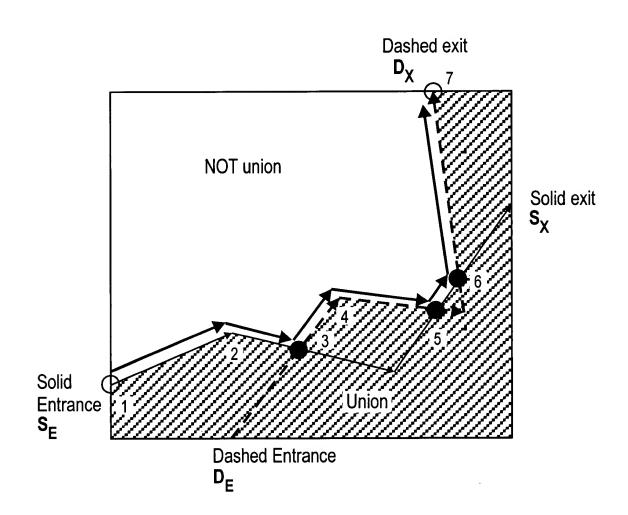


FIG. 18

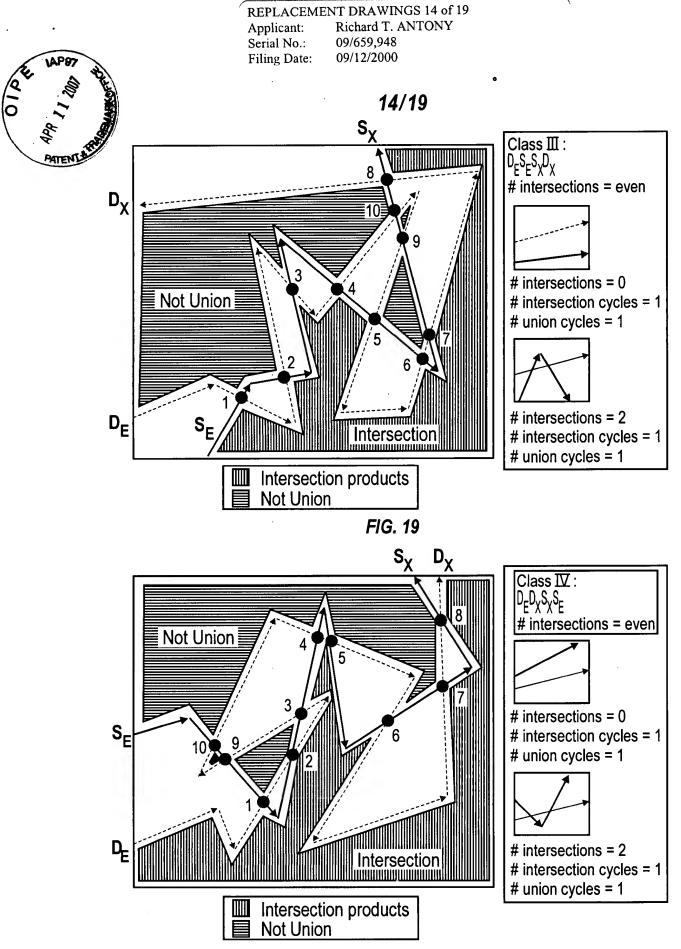


FIG. 20

ATTENT STREET

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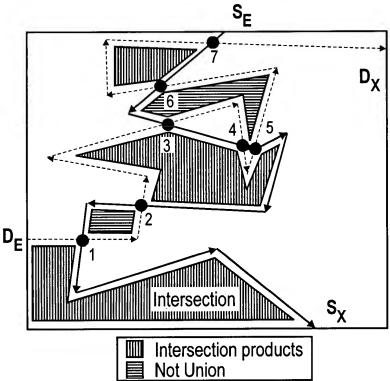


FIG. 21

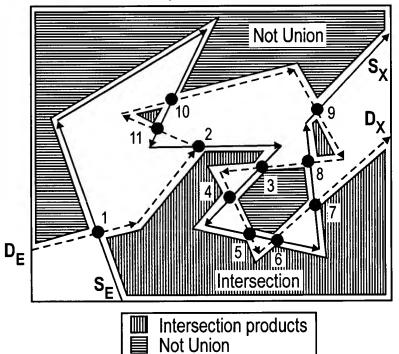
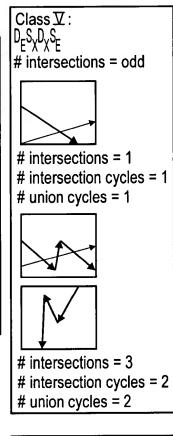
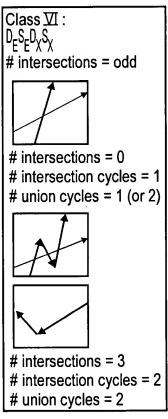


FIG. 22





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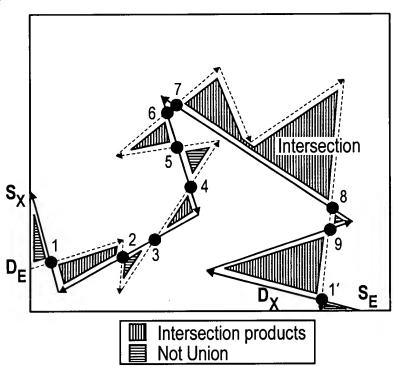
Applicant:

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Class I:

DEDXSESX

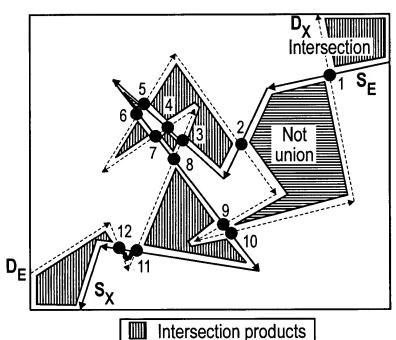
intersections = even

intersection cycles = 0
union cycles = 1

intersection cycles = 1

union cycles = 1

union cycles = 1



Not Union

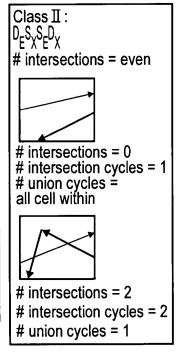


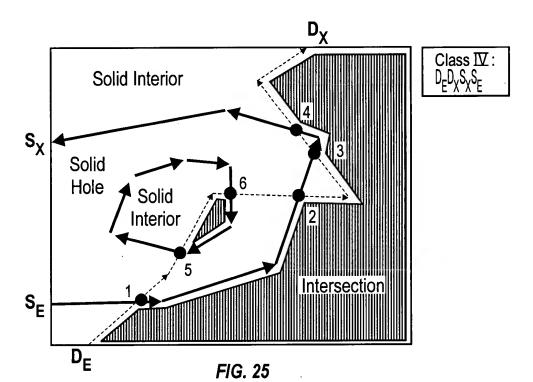
FIG. 24

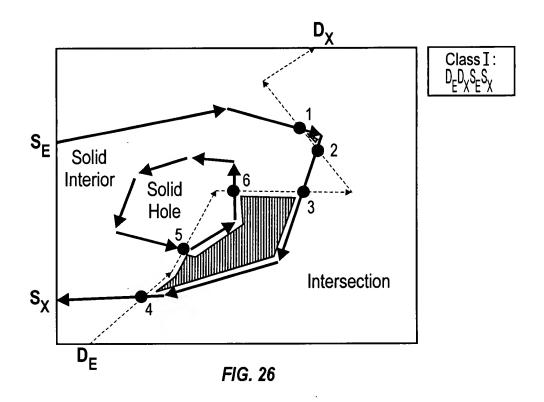
FIG. 23



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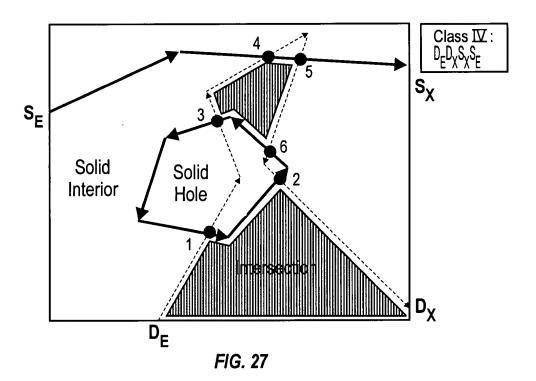
Applicant: Serial No.: Richard T. ANTONY 09/659,948

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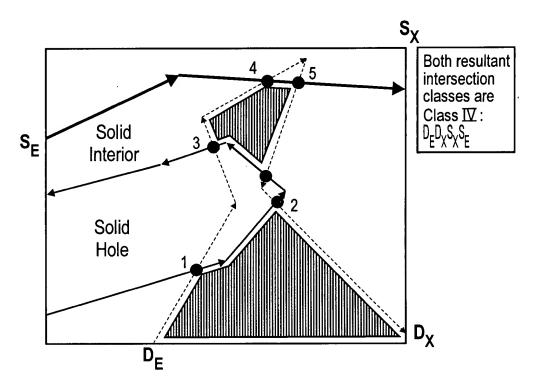


FIG. 28



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Entry/Exit Relationship	Class	Total # of Intersection tuples within cells	Entry/exit relationship adjacent/ alternating	Special cases # Intersect points	Total Intersect Cycles (to the right)	Total # of NOT union cycles (to the right)	Total Intersect Cycles (to the left)	Total # of NOT union cycles (to the left)
$D_E D_X S_E S_X$	I	even	Adjacent	0 2	0 1	2 2	1	Full cell 2
$D_E S_X S_E D_X$	I	even	Adjacent	0 2	1 2	Full cell 1	0 2	2 1
$D_{E}S_{E}S_{X}D_{X}$		even 🛂 🤞	Adjacent	0 2	1	1	1	1
$D_{e}S_{e}D_{\chi}S_{\chi}$	II.	- odd	Alternating	1	1	1	1	1
$D_E D_X S_X S_E$	V	even	Adjacent	0 2		1 2		1 2
-D _E S _X D _X S _E	℧	odd	: Alternating	1 2		1 3		1 2

FIG. 29

